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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/578,769

01/29/2007

Ken Takei

NITT.0327

6221

38327

7590

11/13/2009

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EXAMINER

DUONG, DIEU HIEN

ART UNIT

PAPER NUMBER

2821

MAIL DATE

DELIVERY MODE

11/13/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/578,769	Applicant(s) TAKEI ET AL.	
	Examiner DIEU HIEN T. DUONG	Art Unit 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,6-8,12,13 and 17-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-8,12,13 and 17-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04/06/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is a response to applicant's amendment filed 08/17/2009. In virtue of this amendment, claims 3-5, 9-11 and 14-16 are canceled; thus, claims 1-2, 6-8, 12-13 and 17-22 are currently in the instant application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 6-8, 12-13 and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barna et al. (US 6,611,235 B2 of record) in view of Onaka et al. (US 6,600,449 B2 of record).

Regarding claims 1, 7, 17-18 and 22, Barna discloses, in Figure 20, a portable wireless terminal comprising an antenna incorporated therein, the antenna comprising:

a ground conductor (24) having a ground potential; a single feeding point whose one end is formed by a part of the ground conductor (24); and

a plurality of transmission lines (22, b11, b21, b31) to which RF power supplied to the feeding point is input, for radiating electromagnetic waves of a plurality of frequencies into space,

wherein the plurality of transmission lines (22, b11, b21, b31) include a specific transmission line that consists of a single element without being separated by space to

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radiate electromagnetic waves of the plurality of frequencies into space commonly to the plurality of frequencies,

wherein the number of the plurality of transmission lines (22, b11, b21, b31) is equal to or more than four,

wherein, when the plurality of frequencies are composed of n frequencies of first, second, third and fourth to n-th frequencies, where n is a positive integer of three or more,

the plurality of transmission lines (22, b11, b21, b31) include a first transmission line (22) whose one end is connected to the feeding point (32) and whose other end is connected to a first branching point, a second transmission line connected between the first branching point and a second branching point, and a third transmission line (35) connected to the second branching point;

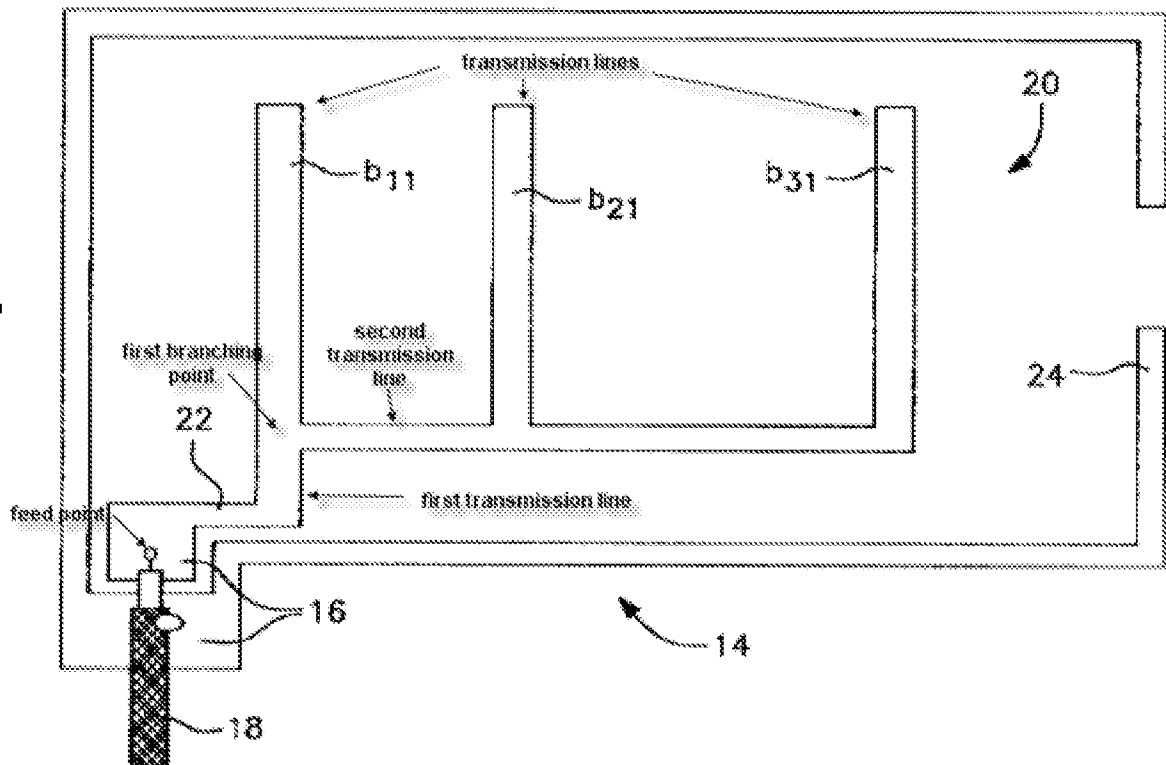
Barna does not disclose, wherein respective lengths of the plurality of transmission lines are set so that impedance matching is performed at the feeding point with respect to the plurality of frequencies, and wherein the total length of the plurality of transmission lines is shorter than the sum of a quarter wavelength of an electromagnetic wave of the first frequency and half wavelengths of electromagnetic waves of the second, third and fourth to n-th frequencies, the second, third and fourth to n-th frequencies being higher than the first frequency.

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Onaka discloses, in col.2, lines 7-22, wherein respective lengths of the plurality of transmission lines are set so that impedance matching is performed at the feeding point with respect to the plurality of frequencies.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transmissions of Barna with the transmission lines having the lengths as though by Onaka, doing so would allow the maximum power to be supplied from the signal source to the transmission lines to increase the gain of the transmissions lines (col. 2, lines 7-22).

Note that: Barna and Onaka do not disclose, wherein the total length of the plurality of transmission lines is shorter than the sum of a quarter wavelength of an electromagnetic wave of the first frequency and half wavelengths of electromagnetic waves of the second, third and fourth to n-th frequencies, the second, third and fourth to n-th frequencies being higher than the first frequency. However, such difference is not patentable merits since it would have been obvious to one having ordinary skill in the art at the time the invention was made to determine the electrical length of the transmission lines to obtain desired frequency bands based on particular application or environment of use. Therefore, to employ having the total length of the transmission lines as claimed would have been obvious to person skill in the art of antenna.

FIG. 20

Regarding claims 2, 6, 8, 12 and 19-20, Barna/Onaka disclose, (Barna, Figure 20), wherein the ground conductor (24), the feeding point and the plurality of transmission lines (22, b11, b21, b31) are formed of an integrated metal plate; wherein the ground conductor (24) is located on one side of one of the plurality of transmission lines (22, b11, b21, b31).

Regarding claims 13 and 21, Barna/Onaka disclose, (Barna, in Figure 16), further comprising a transmission line (26) for impedance adjustment connected to at least one of the feeding point and the branching point.

Conclusion

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4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Inquiry

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIEU HIEN T. DUONG whose telephone number is (571)272-8980. The examiner can normally be reached on Monday - Friday, from 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on 571-272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

11/07/09

/D. T. D./

Examiner, Art Unit 2821

/Trinh Vo Dinh/

Primary Examiner, Art Unit 2821